

Statement of Problem

The Massachusetts Department of Public Health analyzes substances suspected to be illicit drugs, for local, state and federal law enforcement, in accordance with Chapter 111, Section 12, of the Massachusetts General Laws. Qualitative identification of narcotics, common street drugs, and pharmaceuticals is conducted by the Division of Analytical Chemistry, Forensic Drug Laboratories in both the Jamaica Plain (Boston) and Amherst facilities. The laboratories employ 3 evidence officers and 15 analysts and 2 laboratory supervisors. Analysis of evidence is performed in accordance with the guidelines established by the Office of National Drug Policy, Scientific Working Group for the Analysis of Seized Drugs using a variety of visual, microscopic, wet chemical, chromatographic and spectroscopic techniques. Current Massachusetts law stipulates that Drug Laboratory Certificates of Analysis are *prima facia* evidence in both local and state jurisdictions, however, chemists are occasionally subpoenaed to testify as to the methodology employed in a given case in state court. The validity of this regulation is currently under review by the United States Supreme Court in the case of the *Commonwealth of Massachusetts v. Melendez-Diaz*. An adverse decision from the court could require analyst testimony in all cases diverting valuable analytical resources to the judicial system.

As law enforcement efforts have intensified related to the possession and sale of illegal drugs, sample submissions to the laboratories have risen steadily. In fiscal year 2008, the Forensic Drug Laboratories received 41,420 specimens for testing far exceeding the analytical capacity of the combined laboratories. Laboratory staffing levels and fiscal appropriations remained constant despite the increasing work load. Recent fiscal uncertainty has worsened the situation since vacant positions were eliminated to balance dwindling budgets. In addition, the complexity of sample submissions; i.e., higher number of cases involving drug trafficking and the analytical challenges presented by the analysis of crack cocaine, GHB and ketamine, further exacerbate the already stressed system. The current sample backlog is 13,484 specimens with a 171 day turnaround time.

Program Description/Executive Summary

In response to three of the critical priorities articulated in the United States Department of Justice 2009 solicitation: *Paul Coverdell Forensic Science Improvement Grants Program*, the Massachusetts Department of Public Health proposes the following program:

- *to improve the timeliness and quality of forensic drug testing,*
- *to reduce the testing backlog and*
- *to train, assist and employ forensic laboratory personnel to help eliminate the backlog..*

To accomplish these goals, the Massachusetts Department of Public Health proposes to hire an analytical chemist with a strong forensic sciences background to work in the Boston laboratory. The analyst will be trained internally on all of the wet chemical and instrumental techniques employed in the laboratory providing a solid foundation for sample analysis. Attendance at hands-on educational sessions offered by the Drug Enforcement Authority, “DEA School” will enhance the internal training by assuring knowledge of state of the art techniques and trends in drug abuse patterns. Upon successful completion of training and documentation of analyst competency, the chemist will begin testing routine drug seizures. Addition of another qualified chemist will greatly increase the analytical capacity of the laboratory. We estimate that each chemist will analyze between 2000-2500 items per year, obviously any tested items will not contribute to the increasing sample backlog.

The Massachusetts Department of Public Health is requesting \$70,453 to implement this project. Funds would be used to hire and train a chemist and to purchase office and laboratory supplies.

Program Goals, Objectives and Performance Measures

The goals of the program are to expedite laboratory testing of drug by developing additional analytical capacity to maximize sample throughput. Turnaround time and backlog reduction are easily quantifiable measures that can be used to evaluate the efficacy of the program through the Laboratory Information Management System (LIMS), as all analyses performed by an given analyst are tracked and stored in the computer application.

Successful performance would be gauged by the following measures:

- hiring an analytical chemist, preferably with a forensic sciences background;
- providing internal training in all microscopic, wet chemical and instrumental assays and documenting competency on the part of the trainee;
- attending external training at the Drug Enforcement Authority along with another junior member of the staff;
- analyzing 2000 items seized in drug prosecutions.

It is expected that this additional analytical capacity will result in a positive impact on the sample backlog and analysis turnaround time.